

What is claimed is:

1. A polishing composition used in a polishing process for reducing haze level of wafer surface, comprising:

hydroxyethyl cellulose;

polyethylene oxide compounded in said composition in a quantity larger than 0.005% by weight and smaller than 0.5% by weight;

an alkaline compound;

water; and

silicon dioxide.

2. The polishing composition according to claim 1, wherein the total content of iron, nickel, copper, and calcium in the silicon dioxide, as measured in a 20 wt-% aqueous solution of said silicon dioxide, is 300 ppm or less.

3. The polishing composition according to claim 1, wherein the content of hydroxyethyl cellulose in the polishing composition is 0.1 to 1% by weight.

4. The polishing composition according to claim 1, wherein the content of silicon dioxide in the polishing composition is 3 to 20% by weight.

5. The polishing composition according to claim 1, wherein the alkaline compound is ammonia.

6. A rinse composition used in the process for manufacturing silicon wafer having a surface with a reduced haze level, said rinse composition comprising:

hydroxyethyl cellulose;

polyethylene oxide compounded in said composition in a quantity larger than 0.005% by weight and smaller than 0.5% by weight;

an alkaline compound; and  
water.

7. The rinse composition according to claim 6, which is used for reducing the haze level of the surface of said silicon wafer after a polishing process.

8. The rinse composition according to claim 6, wherein the content of hydroxyethyl cellulose in the rinse composition is 0.1 to 1% by weight.

9. The rinse composition according to claim 6, wherein the alkaline compound is ammonia.

10. A method of polishing for providing a silicon wafer having a surface with a reduced haze level, said method comprising the steps of:

preparing a polishing composition containing hydroxyethyl cellulose, polyethylene oxide, an alkaline compound, water, and silicon dioxide, wherein said polyethylene oxide is compounded in said polishing composition in a quantity larger than 0.005% by weight and smaller than 0.5% by weight; and

contacting said polishing composition to the surface of said silicon wafer.

11. A method of rinsing for providing a silicon wafer having a surface with a reduced haze level, said method comprising the steps of:

preparing a rinse composition containing hydroxyethyl cellulose, polyethylene oxide, an alkaline compound, and

water, wherein said polyethylene oxide is compounded in said composition in a quantity larger than 0.005% by weight and smaller than 0.5% by weight; and

contacting said rinse composition to the surface of said silicon wafer after said surface has been polished.

12. A method of treating a surface of a silicon wafer for providing a silicon wafer having a surface with a reduced haze level, said method comprising the steps of:

polishing the surface of said silicon wafer using a polishing composition containing hydroxyethyl cellulose, polyethylene oxide, an alkaline compound, water, and silicon dioxide, wherein said polyethylene oxide is compounded in said composition in a quantity larger than 0.005% by weight and smaller than 0.5% by weight; and then

using a rinse composition to rinse the surface of said silicon wafer immediately after the completion of said polishing step, wherein said rinse composition contains hydroxyethyl cellulose, polyethylene oxide, an alkaline compound, and water, wherein the polyethylene oxide compounded in said rinse composition is in a quantity larger than 0.005% by weight and smaller than 0.5% by weight.

13. The method according to claim 12, wherein said rinse composition has a pH that is substantially equal to a pH of said polishing composition.